



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,589	11/29/2001	Thomas J. Massingill	6136-53804 (25916-162)	6199

30764 7590 12/11/2003

SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
333 SOUTH HOPE STREET
48TH FLOOR
LOS ANGELES, CA 90071-1448

EXAMINER

THAI, LUAN C

ART UNIT	PAPER NUMBER
----------	--------------

2827

DATE MAILED: 12/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/997,589

Applicant(s)

MASSINGILL ET AL.

Examiner

Luan Thai

Art Unit

2827

AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-10, 12 and 14 is/are rejected.
- 7) ☒ Claim(s) 11 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

Charlton 12/9/03

DETAILED ACTION

Election/Restrictions

1. Applicant's election *without traverse* of Group III, claims 6-14, in Paper No. 7, is acknowledged. Claims 1-5 are withdrawn from consideration as being directed to non-elected Embodiment.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

3. This application appears to be a continuation-in-part of patent application No. 09/429,854 filed 10/28/99 patent No. 6,428,942.

Information Disclosure Statement

4. The information disclosure statement (IDS) filed on 8/30/02 has been considered by the examiner.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 6 is rejected under 35 U.S.C. 102(e) as being anticipated by Ozawa et al (6,316,838).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claim 6, Ozawa et al disclose (see specifically figure 2) a multi-chip module comprising: a thin-film polymeric interconnect structure (33) having a first side and a second side; a chip (21) disposed on the first side; a semiconductor chip (23), which inherently comprises a semiconductor layer and includes active devices, disposed directly (Col. 5, lines 10+) on the second side of the structure (33).

7. Claims 6-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Kurashima et al (6,608,371).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 6-9, Kurashima et al (see specifically figure 2C) disclose a multi-chip module comprising: a first chip (10) (e.g., the bottom chip), which is made of a semiconductor material, having a thin-film polymeric structure formed directly on its top surface (Col. 6, lines 33+); a second chip 10 (e.g., the top chip) disposed on the top side of the first chip, which has the polymeric structure directly formed thereon, wherein the semiconductor chips (10) comprises an aperture extending through the body and being filled with solder (28), and

wherein the semiconductor chips (10) could be replaced with capacitors (Col. 16, lines 10+).

8. Claims 10, 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Rostoker et al. (5,640,049).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 10, 12 and 14, Rostoker et al. (see specifically figures 10,13, 16 and 17 attached) disclose a multi-chip module substrate capacitor structure comprising: a substrate (302) having a top surface and a bottom surface; a doped region (306/308) located at the substrate's top surface; an ohmic contact (322/326) located on the top surface of the substrate, a first dielectric layer of silicon oxide (320) disposed over the doped region; a first conductive layer (330-334) having a top surface and a bottom surface, and being disposed over the first dielectric layer (320) with its bottom surface adjacent to the first dielectric layer, the first conductive layer (330-334) having at least a sub-layer of a first conductive material (340-344) disposed at its top surface respectively; a second dielectric layer (190-230) (see Figs. 13 and 17 attached) disposed over the first conductive layer (330-334); an aperture formed in the second dielectric layer and disposed over the first conductive layer (330-334) and having a conductive via (184/204/214-186/206/216) formed therethrough, the conductive via (184/204/214-186/206/216) disposed against a portion of the first conductive layer and comprising a second conductive material disposed adjacent

Art Unit: 2827

to the sub-layer (340-344) of the first conductive material of the first conductive layer; a second conductive layer (164/166) having a top surface and a bottom surface, and being disposed over the second dielectric layer (190/230) with its bottom surface adjacent to the second dielectric layer, the second conductive layer (164/166) having a portion therefor disposed over the conductive via (184/204/214-186/206/216).

Allowable Subject Matter

9. Claims 11 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following is a statement of reasons for the indication of allowable subject matter:

The prior art taken either singly or in combination fails to anticipate or fairly suggest: a) *the first conductive layer comprising polysilicon and a top layer of aluminum*, as recited in claim 11, and b) the substrate comprising a doping level of more than $1 \times 10^{18} \text{cm}^{-3}$ and wherein the doped region is provided by the entire substrate, as recited in claim 13; especially when these limitations are considered within the specific combination claimed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is (703) 308-1211

Application/Control Number: 09/997,589
Art Unit: 2827

Page 6

(after 2/05/2004 the phone number would be changed to 571-272-1935). The examiner can normally be reached on 6:30 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (703) 308-1233 (after 1/12/2004 the phone number would be changed to 571-272-1957). The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'Luan Thai', with a long horizontal flourish extending to the right.

Luan Thai
December 9, 2003